

REMARKS/ARGUMENTS

Introductory Remarks

Claims 1, 3-16, 19-26, 29-32, 38-45, 47-52, 54, 56, and 58-73 are pending in the application. Claims 2, 17, 18, 27, 28, 53, 55, and 57 have been previously canceled. Claims 33-37 and 46 have been previously withdrawn. Claims 1, 10, 13, 14, 26, 38, 39, and 51 have been amended herein. The amendments of claims 1, 10, 13, 14, 26, 38, 39, and 51 do not involve new matter. The amendments of claims 1, 10, 13, 14, 26, 38, 39, and 51 are supported by paragraphs 0011, 0090, 0091, and 0167 of the specification, and by originally filed claims 2, 14, and 39. New claims 68-73 are added herein. The new claims 68-73 do not involve new matter.

Priority

The Office Action contends that the disclosure of the prior-filed provisional patent application, No. 60/439,376 ('376 application), filed 01/10/2003, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of the application. In particular, the Office Action contends that the nucleic acid sequences of SEQ ID NOs:4 and 7 and the polypeptide sequences of SEQ ID NOs:5 and 8 are not disclosed in the provisional application. The Office Action therefore contends that the effective filing date of the instant application is considered to be 01/12/2004. Applicants respectfully disagree.

The present invention relates to novel genes and proteins useful for enhancing disease resistance in plants. These were identified upon screening of a constructed BAC library. In particular, as indicated in the '376 application, the inventors identified BAC clone 177O13 (also called 3A14) and used it for the isolation of the late blight resistance gene of the present invention (e.g., page 39, l. 1-9; SEQ ID NO:1, Figure 2). Genetic mapping confirmed that late blight resistance lies entirely within the CAPS273C/CAPS274A region of the 177O13

BAC clone (see p. 39, lines 5-9). The BAC clone 177O13 was deposited by the inventors in the GenBank under accession number AY303171 on May 21, 2003, and was additionally disclosed and published by Song *et al.* in *Proc. Natl. Acad. Sci. USA* 100 (16): 9128-9133, on August 5, 2003.

In one example, Figure 4 of the '376 application discloses a schematic map showing gene 2 from the resistant homolog. Primers used for amplification of the promoter, terminator and coding regions for gene 2 are described at page 41 of the '376 application. Potato transformation with the isolated gene 2 is described at pages 41-42 of the '376 application. Example 5, at pages 42-43 of the '376 application, shows an amino acid comparison between the gene 2 coding region from a disease resistant and disease susceptible variety.

Shown in SEQ ID NO:4, at p. 69-71 of the '376 application, is a "nucleic acid sequence of disease resistant gene, gene 2 (cloned by PCR). Two exons are highlighted in bold. A single intron is underlined." ('376 application, p. 69; see also Appendix I). When these two identified exons, shown in bold, are joined together, the resulting nucleic acid sequence is 100% identical to the nucleic acid sequence of SEQ ID NO:4 of the instant application. One skilled in the art would know to join the two exons of gene 2 together, in order to obtain a coding region. Therefore, the nucleic acid sequence of SEQ ID NO:4 of the instant application was fully disclosed in the '376 application.

Shown in Example 6, at p. 43-47 of the '376 application (see also Appendix II), is a nucleic acid comparison (alignment) between the gene 2 region from a disease resistant homolog and a disease susceptible homolog. As indicated at p. 43, l. 57-58 of the '376 application, the top amino acid sequence in the comparison presented in Example 6 refers to the gene 2 coding region from the resistant homolog. This nucleic acid sequence is 100% identical to the nucleic acid sequence of SEQ ID NO:4 of the instant application. Furthermore, the bottom amino acid sequence in the comparison presented in Example 6 is shown to include three different nucleotides relative to the top sequence (i.e., instant SEQ ID NO:4): (i) C->T at position 933; (ii) A->G at position 1258; and (iii)

T->A at position 1985. These are exactly the three nucleotides by which SEQ ID NO:7 differs from SEQ ID NO:4 in the instant application. Therefore, the nucleic acid sequence of SEQ ID NO:7 of the instant application was fully disclosed in the '376 application. It is noted that SEQ ID NO:4 and SEQ ID NO:7 are 99.9% identical (only the above-referenced three nucleotides difference out of 2913 nucleotides full sequence length).

Shown in Example 5, at p. 42-43 of the '376 application (see also Appendix III), is an amino acid comparison (alignment) between the gene 2 coding region from a disease resistant homolog and a disease susceptible homolog. As indicated at p. 42, l. 14-17 of the '376 application, the bottom amino acid sequence in Example 5 refers to the gene 2 coding region from the resistant homolog. This amino acid sequence is 100% identical to the amino acid sequence of SEQ ID NO:8 of the instant application. Therefore, the amino acid sequence of SEQ ID NO:8 of the instant application was fully disclosed in the '376 application.

Shown as SEQ ID NO:5, at p. 71 of the '376 application (see also Appendix IV), is a "Gene 2 protein sequence (from the resistant homolog)". This amino acid sequence is 100% identical to the amino acid sequence of SEQ ID NO:5 of the instant application. Therefore, the amino acid sequence of SEQ ID NO:5 of the instant application was fully disclosed in the '376 application.

Accordingly, Applicants respectfully request that the instant application is accorded the correct priority date that corresponds to the date of the filing of the '376 application, i.e., **January 10, 2003**.

Claim Rejections - 35 U.S.C. §102

Claims 1,3-16, 19-22, 24-26, 29-32, 38-41, 43-45, and 66 are rejected under 35 U.S.C. 102(e) as allegedly being anticipated by Jacobus *et al.*, U.S. 20030221215A1, published 11/27/2003 (Jacobus). It is noted that the Office Action refers to the 20030221215A1 patent application as Allefs *et al.* Jacobus is published after the priority date of the present patent application (i.e., after

1/10/2003). Therefore, Jacobus does not qualify as a 35 U.S.C. 102(e) reference. Applicants respectfully request that this rejection be withdrawn.

Claim Rejections - 35 U.S.C. §103

It is not clear from the Office Action which claims have been rejected under 35 U.S.C. 103(a), as allegedly being obvious over Jacobus *et al.*, U.S. 20030221215A1, published 11/27/2003 (Jacobus) in view of Staskawics *et al.*, US 6,166,295 (Staskawics). However, because Jacobus is published after the priority date of the present patent application (i.e., after 1/10/2003), Jacobus does not qualify as a 35 U.S.C. 103(a) reference. Applicants respectfully request that this rejection be withdrawn.

SUMMARY

The claims at issue distinguish over the cited references and are in condition for allowance. Applicants respectfully request the Examiner grant early allowance of this application. The Examiner is invited to contact the undersigned attorney for Applicants via telephone at (312) 321-4254 if such communication would expedite this application.

Respectfully submitted,

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